

“BICOLORATA BARK.”

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[Communicated for the Boston Medical and Surgical Journal.]

“This bark, which is not official in any Pharmacopœia and not much known to the profession at large, is certainly one deserving of attention, and bids fair to equal in value even the cinchona with which it has at times been confounded, and for which it has occasionally been sold in the shops.

Commercial History.—From all that can be learned, it seems that only one shipment has ever been made to this country, and that something more than forty years since. It came from one of the northern ports of South America to New Orleans, and samples of it were sent to the northern cities for sale. Some of the parcel sent to Boston was analyzed by the request of one of the prominent druggists of that day, but from the analysis showing that it contained no quinia, it was considered worthless, and its purchase in any quantity declined.

Natural History.—The bark is in quills, from one-fourth of an inch to one inch in diameter, and from ten to eighteen inches in length. The thickness, varying with the size of the quill, ranges from one-thirty-second to one-sixteenth of an inch. Externally, the quills present a smooth, yet very finely shrivelled epidermis, varying in color from a light ash to a dark reddish ashen hue. On most of the quills may be noticed light colored oval patches, of a slightly irregular outline, and in size from one-fourth of an inch to an inch and more in their longest diameter. Although these spots have the appearance of being superimposed upon the epidermis, and may even be detached, careful examination shows that they are a part of the true epidermis which have undergone some change. Upon the removal of the epidermis at these points, the subjacent parts present no different color from the general surface. The internal surface of the bark is usually quite smooth, and of a color much darker than the external; the prevailing shade is a very dark chocolate. The freshly broken bark presents an orange yellow fracture, which is rough and seems to be at points almost resinous. The bark is hard, heavy and brittle. A microscopical examination of thin sections shows a structure entirely different from any cinchona, especially in the existence of some peculiar arrangement of tissues, like the medullary rays in some woods. Transverse to the ordinary spindle-shaped cells of barks, is another series of cells, running from near the epidermis deep into the liber. These cells are an oblong square in form, and seem to contain a semi-transparent yellowish matter, with a resinous appearance.

As to the botanical affinities of the tree from which this bark is obtained, we are yet in the dark. The bark, no doubt, is to be placed amongst the false cinchonas, and most of these, if not all, are derived from plants of the same natural order as the cinchona. Several of them are from species of the genus *Exostemma*, and Guibort supposes a bark which he calls *quinquina bicolor*, and which he says is called by the Italians *china bicolorata*, is derived from an *Exostemma*. Christison describes a bark like this, and which he showed me in the Museum of Materia Medica of the University of Edinburgh, saying that he derived it from Italian commerce. He thinks it to be a bark that Brera and other Italian physicians esteem very highly. By them it was considered as coming from the mountain of Pitaya, in Colombia, and was called, by the Italian pharmacologists, *china bicolorata*; while in commerce it went by the name Tecamar bark, and which yielded, by the analysis of Folchi and Peretti an alkali termed *Pitayna*.

Wood describes this bark, calling it *cinchona bicolor* (a name first given it, I think, by Parrish), and says it was landed at New Orleans many years since, and afterwards sent to Europe; he also states that it is called *quinquina bicolor* by the French pharmacologists, and *china bicolorata* in Italy. He thinks it has been erroneously confounded with Pitaya bark, which is the hard Carthagena bark from which the alkali Pitayna was obtained. With such want of harmony in opinions upon its botanical origin, we may well consider that its natural history is incomplete, although it seems evident that, under the name *china bicolorata* and Tecamar bark, it has been used by the Italian physicians, and a high therapeutical value attached to it.

Pharmaceutical History.—The bicolorata bark was analyzed by Dr. A. A. Hayes, some years since, in order to ascertain what amount of quinia it contained, but his investigations show that it contained none. From some remark he made at the time, however, I inferred that he found either cinchonia or some other principle nearly allied to it. In October, 1860, Dr. Hayes made another analysis, with the following result:—

“The active matter of this bark is soluble in water, and in alcohol and water. Analysis divides the whole soluble matter into resin and brown bitter principle; no trace of an alkaleid could be discovered.

“100 parts of the bark afford, by repeated solutions in water, 12 parts of red-brown bitter principle.

“100 parts of the bark afford, by digestion in alcohol, $4\frac{45}{100}$ parts of red-brown resinous matter.

“100 parts, after repeated digestions in alcohol, in proof spirit and in water, afford

Red-brown resin, - - - - -	4.45
Peculiar red-brown bitter principle, - - - - -	14.42

Whole soluble matter, - - - - -	18.87
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“The active principles thus separated from the bark, decomposed as usual for alkaloids did not show any indications of a basic character. In the extract, a slight indication of a kind of tannic acid was found, and lime water separated a coloring matter which was nearly or quite tasteless. The principles which give their character to the bark are a resinous body and a red-brown bitter principle. In water, the resinous body, repeatedly washed, does not cease to impart bitterness. It dissolves in alkalies, freely in alcohol, and the solution is not wholly decomposed when diluted with water. Dissolved in proof spirit, it has an aromatic and bitter taste not disagreeable.

“Water containing the bitter extract imparts its taste to a large volume of water. This bitter differs from that of quassia, in the impression produced upon the organ of taste being more closely like that of the salts of quinia.

“It is probable that the tonic effects produced by the bark are immediately dependent on the action of this soluble principle, which dissolves in acidulated as well as alkaline water.”

I can find no other analysis of this bark, and, from the well-known accuracy of this expert analyst, suppose that its chemical character is fully disclosed.

The preparations of it are a tincture, and an acidulated decoction or infusion.

Therapeutical History.—I can learn but little in regard to the use of this bark beyond my own experience. This or a similar bark has been used in Italy as a tonic and in the treatment of intermittents, and, as above mentioned, was highly esteemed by Brera and others. My own observations upon this bark as a medical agent commenced at least twenty-five years since, and have continued uninterruptedly to this date. At first it was given only as a tonic in convalescence from fevers and other acute diseases. Gradually it was found to have some properties quite different from cinchona or any other tonic. Extended observation at length convinced me that this peculiarity consisted in its more immediate action upon the smooth instead of the striped muscles; or, in other words, upon the organic muscular fibres like those in the walls of the stomach, intestines, &c., rather than upon the muscles of voluntary motion. By virtue of this power, this remedy proved of great service in all the atonic conditions, not only of the stomach and intestines, but also of all organs where the organic muscular fibre exists. At a later period of my investigations, I found that the bark had some power of increasing the quantity of blood, acting in this respect something like iron. Where, too, anything like a scorbutic diathesis existed, it seemed to restore the circulating fluids to a normal state and increase the firmness of the soft parts. Having now collected so many observations upon the remedial action of the bicolorata bark, I can speak with a good deal of confidence on the subject, and think that few if any remedies equal it in the following cases:—

1st. Those blood diseases in which there is a dyscratic condition, such as is seen in purpura and scurvy. In complicated anæmic states it is preferable to iron.

2d. In most of those constitutional diseases in which there is marked loss of muscular strength, with but little febrile re-action.

3d. In all atonic states of the digestive organs, especially the stomach.

4th. In debility from acute disease, or in that resulting from fever.

“Hanover, N. H., February, 1861.”

The bark may be given in the form of Tincture or Decoction.

TINCTURE.—Bark, 4 oz.

Dilute Proof Spirit, two quarts.

Add the Bark to the Spirit, and keep in a warm place for ten days, occasionally shaking it—pour off and filter.

Dose—one to three tea-spoonfuls, three times per day.

DECOCTION.—Bark, 4 oz., water, one gallon.

Add the Bark and apply heat nearly equal to that of boiling water for one or two hours, allowing it to stand on the Bark for two or three days, and then add half pint strong cider vinegar, and after another day, pour off clear.

Dose—from a tea-spoonful to a table-spoonful, three times a day.

Dr. Hayes says, in his analysis, “As so large an amount of this bark is soluble in water and alcohol, it is apparent that, under a given weight, it offers an economical source of a tonic bitter of peculiarly active power, as has been demonstrated in practice, and that it is well worthy of more extended application, as a medicament.”

Having observed the communication of Edward E. Phelps, M. D., of Dartmouth College, to the *Medical and Surgical Journal*, Volume LXIV., No. 3, on the use and properties of “BICOLORATA BARK,” we have procured a limited supply, and have exclusive control of all the article known to commerce. It is ground and put up in one pound packages, and we are prepared to supply Physicians and the Trade generally with the same.

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